

ABSTRACT OF THE DISCLOSURE

*Sub a<sup>2</sup>*

An induction furnace capable of drawing large diameter preforms of up to 130 mm is described. The induction furnace has top and bottom chimneys surrounding the entire preform during operation of the furnace with an inert conditioning gas which is introduced into the top chimney and flows downward through the furnace body and bottom chimney without significant turbulence. A distributor ring inside the top chimney redirects flow from a circumferential direction to a downward direction. The top chimney also includes a resilient seal to releasably hold the top of the preform. The bottom chimney has a smoothly decreasing cross-sectional area preventing turbulence at the furnace exit. The furnace insulation is preferably a rigid self-supporting graphite cylinder. A method of drawing large diameter preforms either to an optical fiber or to a preform of smaller diameter using such a furnace is also described.

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